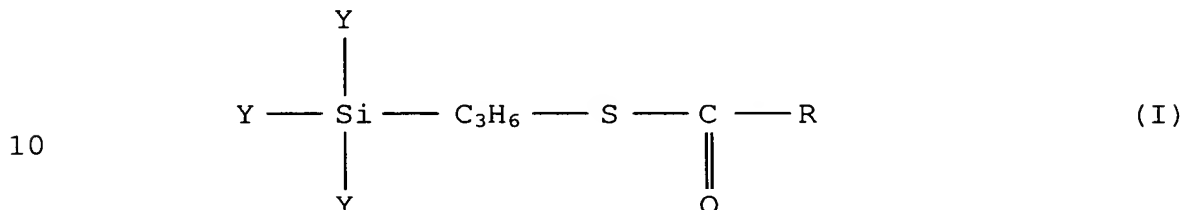


CLAIMS

1. A surface-treated silica treated, on the surface thereof, with at least one silane coupling agent X represented by the formula (I):

5



wherein Y independently indicates a methoxy, ethoxy, propoxy, isopropoxy, butoxy, isobutoxy or acetoxy group, R indicates a C₁ to C₁₈ hydrocarbon group selected from a linear, cyclic or branched alkyl group, alkenyl group, aryl group and aralkyl group.

2. A surface-treated silica as claimed in claim 1, wherein the silica treated, on its surface, with the silane coupling agent X has a bulk density retention rate of 50 to 150%.

3. A surface-treated silica as claimed in claim 1 or 2, wherein the amount of surface treatment of the silica with the silane coupling agent X satisfies the relationship:

$$1 \leq (\text{the weight of silane coupling agent X} / \text{the weight of silica before treatment}) \times 100 \leq 25$$

4. A rubber composition comprising a rubber component containing 100 parts by weight of at least one diene-based rubber and 2 to 100 parts by weight of a surface-treated silica treated, on its surface in advance, with a silane coupling agent X according to any one of claims 1 to 3.

5. A rubber composition as claimed in claim 4, wherein the surface-treated silica is included in an amount of 20 to 100 parts by weight.

6. A rubber composition as claimed in claim 5, wherein the rubber component contains natural rubber in

an amount of 10% by weight or more and styrene-butadiene copolymer rubber in an amount of 20% by weight or more.

5 7. A rubber composition for a studless tire comprising 100 parts by weight of a diene-based rubber containing 30 to 80 parts by weight of natural rubber and 70 to 20 parts by weight of a polybutadiene rubber and 2 to 30 parts by weight of the surface-treated silica according to any one of claims 1 to 3.

10 8. A rubber composition for a studless tire as claimed in claim 7, wherein the diene-based rubber has an average glass transition temperature of -55°C or less.